

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application of: Rick K. SOUTHERN et al.

Confirmation No.: 1727

Application No.: 10/034,446

Group Art Unit: 3637

Filed: December 26, 2001

Examiner: Phi Dieu Tran A

For: METHODS FOR ATTACHING SOLID  
HARDWOOD FLOOR PLANKS TO  
CONCRETE FLOOR SURFACES

Attorney Docket No.: 104981-4000

**DECLARATION UNDER 37 C.F.R. § 1.132  
OF JAMES PERKINS**

**Mail Stop Amendment**  
Commissioner for Patents  
P.O. Box 1450  
Alexandria VA 22313-1450

Sir:

I, James Perkins, hereby declare as follows:

1. I am a citizen of the United States, residing at 17961 Larcrest Circle, Huntington Beach, CA 92647.

2. I have a degree of B.A. conferred from University of California, Los Angeles, in International Economics with a minor in Accounting. I have six years of professional experience in managing and overseeing floor production, installation, and inspection. I also have worked in carpentry and cabinet-making for twenty years as a hobby. I have been employed by the assignee of this application since 2001, and my current title is Chief Operating Officer. My duties as an employee of the assignee have included reviewing hardwood flooring manufacture and installation processes; managing hardwood flooring production and installation; jobsite inspection of flooring; technical problem solving; product research and development; and writing technical specifications and installation instructions.

3. I have reviewed and am familiar with the current Office Action mailed March 2, 2007, the Amendment submitted concurrently herewith, and the references cited

in the Office Action, including U.S. Patent No. 2,088,238 to Greenway ("Greenway"), No. 5,570,554 to Searer ("Searer"), and No. 5,951,796 to Murray ("Murray"), and a document from Armstrong entitled "1/4" & 3/8" Engineered Products for Staple-Down & Glue-Down Installation" ("Armstrong"). I am making the following statements as one of ordinary skill in the art in support of patentability of the claims in this application.

4. I hereby incorporate by reference the statements made in Declarations Under 37 C.F.R. § 1.132 of Richard Hirsch dated October 29, 2003, July 2, 2004 and March 29, 2005; and Joseph J. Grady, Jr. dated April 29, 2004.

5. The Examiner refers to the section in Armstrong entitled "Step 3: Installation of Flooring" (p. 12) as disclosing "the step of gluing floorboard to a concrete slab and then nailing the floorboard to the substrate . . . to help hold the row in place" (Office Action at pages 3, 6, and 9). The Examiner, however, misinterprets Armstrong.

6. Armstrong explicitly specifies that concrete slabs should be used for glue-down installation only, and not for staple-down installation. In the section entitled "Subfloor Requirements," Armstrong separately lists subfloor types suitable for "staple-down or glue-down" installation and those suitable for "glue-down only" (see p. 5). "Concrete slabs" is listed as a subfloor recommended for "glue-down only." Further, Armstrong specifically instructs to use a plywood subfloor for staple-down installation on concrete slabs. (See p. 6 ("Install a suitable moisture barrier followed by a plywood subfloor with a minimum thickness of 1/2")). Thus, Armstrong teaches using only an adhesive to install flooring directly on concrete, and requires a plywood subfloor between the flooring and the concrete for installation with nails. Armstrong does not disclose or suggest installing the flooring directly on concrete with an adhesive and nails as recited in the claims of this application.

7. The section in Armstrong cited by the Examiner also does not disclose "the step of gluing floorboard to a concrete slab and then nailing the floorboard to the substrate" as the Examiner states. That section provides instructions for glue-down installation generally. It discloses how to lay engineered floorboards after spreading an

adhesive on a subfloor, and provides that, “[i]f necessary, nail a sacrificial row with 1” nails on the dry side of your chalk line to help hold the first row in place” (p. 12). Since the sacrificial row is placed on the dry side of the chalk line, there is no adhesive applied to the underside of the sacrificial row.

8. In fact, as a person having ordinary skill in the art knows, an adhesive is never applied to the underside of a sacrificial row. Because a sacrificial row is intended to be only a place holder, to maintain a straight line to which to install the rest of planks, and be removed after installation of flooring, an adhesive is not applied on a sacrificial row to facilitate its removal.

9. Armstrong also does not disclose or suggest nailing floorboards to concrete substantially at right angles thereto. To the contrary, Armstrong specifically discloses nailing at a 45° angle. (See FIG. 3 on p. 4 (showing staples installed at 45° at various air pressures); p. 7 (instructing to pre-drill and blind-nail at a 45° angle through the tongue of the row)).

10. Furthermore, Armstrong is directed to installation of engineered flooring, which has a very different construction and behavior from solid hardwood flooring.

11. Solid hardwood has its grain running in one direction and therefore exhibits curving, bowing, and twisting in response to factors such as humidity and moisture as well as wood processing steps prior to installation. Thus, to use any adhesive to attach solid wood flooring directly to concrete, the flooring needed to be very flat and straight to ensure proper and sufficient contact between the flooring, adhesive, and concrete. Also, because solid wood tends to curve longitudinally as well as laterally, a solid wood floorboard must be pushed or pulled tightly to an adjacent board and then quickly nailed in place to be held down and straight. This significantly limited installation conditions for solid hardwood flooring, as well as wood preparations that could be conducted prior to installation, as stated in the Supplemental Declaration under 37 C.F.R. § 1.132 of Richard Hirsh dated March 29, 2005. The claimed methods for

installing solid hardwood floor planks solve these problems by using both a water-resistant and water-impermeable and/or water-curable adhesive and nailing. Providing nails in addition to a water-resistant and water-impermeable and/or water-curable adhesive can keep the wood floorboards in proper contact with the adhesive, and the adhesive in proper contact with the concrete surface while the adhesive cures, thus greatly improving resistance to longitudinal and lateral warping and movement of the wood, and holding the boards straight to avoid curving that would cause gaps in the floor.

12. Unlike solid wood flooring, engineered flooring is designed with a series of plies of wood laid with the grain running in a criss-cross pattern. The resulting engineered floorboard is very straight and flat, without curving, bowing, or twisting. Indeed, engineered flooring was invented in part to overcome limitations of solid wood flooring caused by warping, and to allow effective direct installation over concrete. Engineered flooring is thus more stable to factors such as humidity, is not warped due to any processing steps, and does not need to be held flat against the subfloor during installation. Consequently, there is simply no need to hold down adhesively attached engineered flooring by additional nailing to “hold it in place” until the adhesive dries.

13. The differences between solid wood flooring and engineered flooring are further demonstrated by Armstrong’s own sets of instructions archived at [http://web.archive.org/web/20010418225515/www.armstrong.com/resbrucewoodna/installation\\_tips.jsp](http://web.archive.org/web/20010418225515/www.armstrong.com/resbrucewoodna/installation_tips.jsp). In addition to the Armstrong reference cited by the Examiner, Armstrong provides separate installation instructions for 3/4” solid plank and strip products for nail-down installation; 1/4” and 5/16” solid oak parquet products for glue-down installation; 5/16” Natural Reflections solid strip for staple-down and glue-down installation; and Coastal Woodlands 3/8” & 1/2” floating floors for floating or glue-down installation. I have reviewed each of these instructions. None of the instructions discloses nailing solid hardwood directly to concrete; all instructions require a suitable nailing substrate such as plywood for solid hardwood installation.

14. As an example, the instructions for 3/4” solid plank and strip products, entitled “3/4” Solid Plank & Strip Products for Nail-Down Installation” (the “Solid Plank

Instructions”) (at [http://web.archive.org/web/20010418225515/www.armstrong.com/resbrucewoodna/installation\\_tips.jsp](http://web.archive.org/web/20010418225515/www.armstrong.com/resbrucewoodna/installation_tips.jsp)), published around the same time as the cited Armstrong reference, is submitted herewith as Exhibit A.

15. The Solid Plank Instructions discloses recommended subfloor surfaces for installing solid wood plank or strip as plywood, existing solid wood flooring, screeds, and T&G wood subflooring (see p. 3), with plywood being preferred. Concrete is not included in the recommended subfloor surfaces.

16. The Solid Plank Instructions provides that “appropriate nailing surface” is required to install solid flooring over concrete (see p. 4). A plywood subfloor is disclosed as a subfloor for installing solid flooring on concrete slabs. Thus, the Solid Plank Instructions shows that, at the time of its publication, installing solid wood on concrete was known to require an appropriate nailing surface, such as a plywood subfloor, between the wood flooring and the concrete. The Solid Plank Instructions further teaches blind-nailing plank boards at a 45° angle (see p. 5). Thus, the Solid Plank Instructions shows the state of the art at the time of its publication that installation of solid wood on concrete required a subfloor and nailing at 45°.

17. It is therefore my opinion that Armstrong, which provides no disclosure or suggestion to one of ordinary skill in the art of using both an adhesive and nails to install solid hardwood flooring, and which is directed to a completely different flooring material, would not have rendered the claims obvious.

18. It is also my opinion that Armstrong, taken together with Greenway, Murray, and/or Searer, does not render the claims obvious. Greenway discloses installing wood flooring by either laying in mastic, which is neither water-resistant nor water-impermeable, without nails, or nailing diagonally to a wooden subfloor. By contrast, Searer specifically teaches avoiding adhesives altogether by providing interlocking floor design that is secured only with a staple or nail. Murray, on the other hand, discloses a certain two-component reactive polyurethane adhesive that has specific reactive and foaming properties and that is used to bond a construction material to a construction

substrate. None of the cited references, alone or in combination, discloses or suggests attaching or installing solid hardwood floor planks to a concrete floor surface by using both an adhesive and nailing.

19. Further, because each reference is directed to a different flooring method to achieve a certain different effect or purpose, a person having ordinary skill in the art would not have had a motivation to combine the cited references to achieve the flooring methods and the floor recited in the present claims. In particular, Greenway's use of mastic and Murray's use of reactive polyurethane adhesive are incompatible with Searer's complete avoidance of adhesive and cannot be properly combined. Greenway's diagonal nailing into a wooden subfloor is also incompatible with Searer's substantially vertical nailing. Armstrong is further different from the other references as being directed to engineered flooring instead of solid wood flooring, which have different properties and require different treatments, such that one of ordinary skill in the art would not have been motivated to combine it with the other references.

20. The Examiner also states that Greenway discloses "the step of providing the floorboards with surface wormholes (6)" (pp. 3, 6, and 8 of the office Action). This statement is incorrect. What the Examiner classifies as "wormholes (6)" are not wormholes at all, but instead nailing grooves. The nailing grooves in Greenway are structured such that they would be covered from view by adjacent flooring strips upon installation (see FIGS. 1-2; p. 2, lines 38-43). A wormhole in hardwood, by contrast, is a feature that gives a certain type of appearance to the wood, and would have been understood by a person having ordinary skill in the art to be very different from nailing grooves. Unlike the nailing grooves of Greenway, a visual feature like wormholes is also not meant to be covered, since it is meant to impart a certain appearance.


21. The Examiner also incorrectly states that "Greenway (figure 2) shows nailing the boards to the concrete floor surface substantially at right angles thereto through the boards" (p. 6 of the Office Action). FIG. 2 of Greenway, however, shows nails driven at a 45° angle into the subflooring. One of ordinary skill in the art would understand that a 45° angle is not substantially a right angle, but very far from a right

angle. Greenway also clearly states that nails are driven "diagonally" downward, and provides nailing grooves at bottom corners of flooring strips, to allow such diagonal insertion of nails (see p. 2, lines 38-43; FIGS. 1, 2). Because of their placement on the flooring strips, the nailing grooves in Greenway would not readily allow nailing the strips to the underlying surface substantially at right angles thereto, since they would not allow the insertion of a hammer or a nailing gun right next to the vertical walls of the grooves.

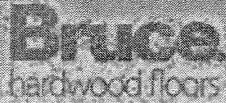
22. I further declare that all statements made herein of my knowledge are true and all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

Dated this 1<sup>st</sup> day of August, 2007.

Declarant:

  
James Perkins

## **EXHIBIT A**



- Bruce Home
- Browse Floors
- Select a Floor
- Room Viewer

- Locate a Dealer
- Request Literature
- Installation Tips

- Warranty Information
- Care & Maintenance

- Frequently Asked Questions
- Contact Us

- Bruce Laminate Floors

Search: Bruce Hardwood Floors

 hit C

(Product Name, Product Line)

## Installation Tips

member center |

LOGIN

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### 3/4" Solid Plank & Strip Products For Nail-Down Installation

#### INSTALLER/OWNER RESPONSIBILITY

Beautiful hardwood floors are a product of nature and therefore, not perfect. Our wood floors are manufactured in accordance with accepted industry standards, which permit a defect tolerance not to exceed 5%. The defects may be of a manufacturing or natural type.

- The installer assumes all responsibility for final inspection of product quality. This inspection of all flooring should be done before installation. Carefully examine flooring for color, finish and quality before installing it. If material is not acceptable, do not install it and contact the seller immediately.
- Prior to installation of any hardwood-flooring product, the installer must determine that the job-site environment and the sub-surfaces involved meet or exceed all applicable standards and recommendations of the construction and materials industries. These instructions recommend that the construction and subfloor be dry, stiff and flat. The manufacturer declines any responsibility for job failure resulting from or associated with sub-surface or job-site environment deficiencies.
- Prior to installation, the installer/owner has final inspection responsibility as to grade, manufacture and factory finish. The installer must use reasonable selectivity and hold out or cut off pieces with defects, whatever the cause.
- Use of stain, filler or putty stick for defect correction during installation should be accepted as normal procedure.
- When flooring is ordered, 5% must be added to the actual square footage needed for cutting and grading allowance.
- Should an individual piece be doubtful as to grade, manufacture or factory finish, the installer should not use the piece.

#### TOOLS & ACCESSORIES NEEDED

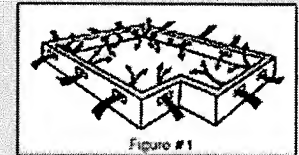
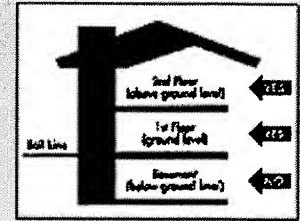
- |                      |   |   |
|----------------------|---|---|
| • Broom              | • Drill with 1/16" drill bit            | • Table saw, jig saw, or circular saw     |
| • Tape Measure       | • Hammer                                | • Moisture meter (wood, concrete or both) |
| • Chalk line & chalk | • Recommended Hardwood Flooring Cleaner | • 6-8d finishing nails                    |
| • Hand saw           | • Nail Set                              | • >" "Blind" fastening machine            |

#### PRE-INSTALLATION PROCEDURES

##### Job Site Inspection

- The building should be closed in with all outside doors and windows in place. All concrete, masonry, framing members, drywall, paint and other "wet" work should be thoroughly dry.
- The wall coverings should be in place and the painting completed except for the final coat on the base molding. When possible, delay installation of base molding until flooring installation is complete.
- Exterior grading should be complete with surface drainage directing water away from the building. All gutters and downspouts should be in place.
- Solid flooring can only be installed on or above grade level. Do not install in full bathrooms.
- Basements and crawl spaces must be dry and well ventilated.
- Crawl space must be a minimum of 24" (600 mm) from the ground to

underside of joists. A ground cover of 6-8 mil black polyethylene film is essential as a vapor barrier with joints lapped six inches and taped. The crawl space should have perimeter venting equal to a minimum of 1.5% of the crawl space square footage. These vents should be properly located to foster cross ventilation (see figure #1).



- Subfloor must be checked for moisture content using the appropriate testing method.
- Permanent air conditioning and heating systems should be in place and operational. The installation site should have a consistent room temperature of 60-750 F and humidity of 35-55% for 14 days prior, during and until occupied, to allow for proper acclimation.

#### STORAGE AND HANDLING

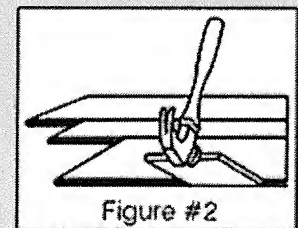
Solid products should be stored in the environment in which they are expected to perform. Deliver the materials to an environmentally controlled site. Materials should be allowed to acclimate for as long as necessary to meet minimum installation requirements for moisture content. Handle and unload with care. Store in a dry place being sure to provide at least a four-inch air space under cartons which are stored upon "on-grade" concrete floors. Flooring should not be delivered until the building has been closed in with windows and doors in place and until cement work, plastering and all other "wet" work is completed and dry. Concrete should be at least 60 days old. Air conditioning/heating systems should be in place and in operation at least 14 days prior, during and after installation of the flooring.

#### INSTALLATION APPLICATIONS

NOTE: MINOR SQUEAKING OF MECHANICALLY FASTENED FLOORS IS NOT ABNORMAL DUE TO STRUCTURAL MOVEMENT CAUSED BY CHANGES IN ENVIRONMENTAL CONDITIONS. FOLLOWING THESE INSTRUCTIONS CAN MINIMIZE THESE FACTORS, BUT OFFER NO GUARANTEE THAT THE FLOOR WILL NOT SQUEAK.

##### General Information for Fastening Machines:

Avoid striking the edge of prefinished products with the fastener's mallet. Edge crushing can occur causing unsightly cracks and splinters. Use a block to hammer against if necessary (figure #2). Faceplates should be covered with protective materials to prevent damage to the surface of the flooring.



##### General Information for Manual Fastening Machines:

Improper adapter plate selection can cause severe edge damage. Ascertain that the proper adapter has been selected and properly installed for ">" flooring.

##### General Information for Pneumatic Fastening Machines:

Improper pressure settings and failure to use proper adapters can cause severe damage to the flooring. The correct adapter and air pressure setting will properly set the fastener in the nail pocket (figure #3). Low air pressures may fail to properly set the fastener and damage adjoining

boards.



Figure #3

Air pressures set too high may cause damage to the tongue which may dramatically reduce the holding power of the fastener causing loose, squeaky floors. Make certain that the compressor has a regulator in-line with the air hose for proper adjustment. Set pressure at 70-75 PSI to begin with and adjust until proper fastener setting occurs.

### SUBFLOOR REQUIREMENTS

NOTE: Laminated rosin paper or 15# builders felt (tarpaper) acts as a moisture retarder and may be used to reduce movement caused by changes in subfloor moisture, thereby reducing cupping and warping. (This is especially helpful over crawl spaces and basements) In addition, the use of these materials can give the flooring a more solid feeling, reduce sound transfer, prevent noise caused by minor irregularities and debris, and make it easier to slide the wood together across the surface of the subfloor. Kraft paper may be used to make installation easier but DOES NOT serve any other purpose.

#### SUBFLOORS MUST BE:

- CLEAN - Scrape, broom clean, and smooth. Free of wax, paint, oil or debris.
- LEVEL/FLAT - Within 3/16" in 10' and/or 1/8" in 6'. Sand high areas or joints. Low spots can be flattened using shims or layers of builders felt between the wood and the subfloor during installation.
- STRUCTURALLY SOUND - Nail or screw any loose areas that squeak. Replace any water-damaged, swollen or delaminated subflooring or underlayments, as they are unable to properly hold fasteners. Avoid subfloor with excessive vertical movement unless they have been properly stiffened prior to the installation of the wood flooring.
- DRY - Check moisture content of subfloor. Moisture content of wood subfloor must not exceed 13% on a wood moisture meter, or read more than a 4% difference (3% for plank) than moisture level of product being installed.

### RECOMMENDED SUBFLOOR SURFACES

- PREFERRED: >" (19 mm) CDX grade plywood
- >" (23/32") OSB PS2 rated underlayment
- MINIMUM: 5/8" CDX grade plywood
- Existing solid wood flooring
- Screeds
- T&G wood subflooring

#### SUBFLOOR TYPES:

Note: Do Not Install Solid Wood Plank or Strip Over Radiant Heated Subfloors

### WOOD SUBFLOORS & WOOD STRUCTURAL PANEL SUBFLOORS

Plywood: Must be minimum APA grade rated sheathing or CDX. Oriented Strand Board (OSB): Must be PS2 rated installed sealed side down. Do Not install over particleboard, waferboard, pressed wood or fiber board.

Make sure existing floor or subfloor is dry and well nailed or screwed down every 6" along each joist to avoid squeaking or popping before the floor is installed. Measure moisture content of both subfloor and wood flooring to determine proper moisture content with a reliable wood moisture meter (figure #4). The wood subfloor must not exceed 13% moisture content as measured with a reliable wood moisture meter. The difference between the moisture content of the wood subfloor and the wood flooring must not exceed 4%. (3% for plank)

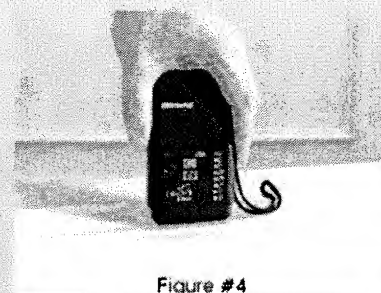


Figure #4

Optimum performance of hardwood floor covering products occurs when there is no horizontal or vertical movement of the subfloor. The MINIMUM subfloor recommendations described above are for 16" O/C joist spacing. The thicker, PREFERRED subfloor recommendations described above will allow 19.2" joist spacing if the joist manufacturer's recommended span is not exceeded. Spacing in excess of 19.2" O/C may not offer optimum results. Install flooring perpendicular to the floor joists when possible. Installations should not be made parallel to the floor joists or on joist spacing that exceeds 19.2" O/C unless the subfloor has been properly stiffened. Stiffening may require the addition of a second layer of subflooring material to bring the overall thickness to at least 1-1/8".

All underlayment panels should be spaced 1/8" apart to insure adequate expansion space. This can be achieved by using a circular saw set at the depth of the underlayment and cutting around the perimeter of the panel. T&G panels normally have built in expansion; DO NOT cut around the perimeter of T&G panels. Do not install over existing glue-down floors. Do not install over nailed floors that exceed 3-4" in width. Wide width floors must be overlaid with plywood. When installing over existing wood floors parallel with the flooring, it may be necessary to install an additional 4" layer of plywood to stabilize the flooring or install the wood floor at right angles. Applicable standards and recommendations of the construction and materials industries must be met or exceeded.

#### CONCRETE SLABS

Solid flooring can be installed over concrete once the appropriate nailing surface has been installed. The concrete must be of high compressive strength. All concrete subfloors should be tested for moisture content. Visual checks are not reliable. Acceptable test methods for subfloor moisture content include:

NOTE: Test several areas, especially near exterior walls and walls containing plumbing.

- A 3% Phenolphthalein in Anhydrous alcohol solution. Chip the concrete at least 4" deep (do not apply directly to the concrete surface) and apply several drops of the solution to the chipped area. If any color change occurs, further testing is required.
- Calcium Chloride test. The maximum moisture transfer must not exceed 3 lbs./1000 square feet with this test.
- Tramex Concrete Moisture Encounter meter (figure #5). Moisture readings should not exceed 4.5 on the upper scale. (Figure #5 shows an unacceptable reading of over 4.5)

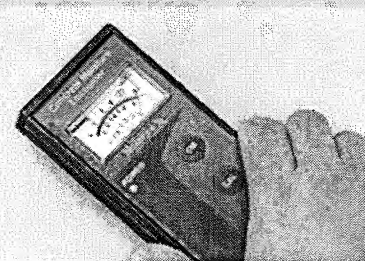


Figure #5

A "DRY" SLAB, AS DEFINED BY THESE TESTS CAN BE WET AT OTHER TIMES OF THE YEAR. THESE TESTS DO NOT GUARANTEE A DRY SLAB. ALL CONCRETE SLABS SHOULD HAVE A MINIMUM OF 6 MIL POLY FILM MOISTURE BARRIER BETWEEN THE GROUND AND THE CONCRETE.

Moisture Retardant System: If moisture is present, install 6-mil poly to the surface of the concrete BEFORE installing the subfloor. Several layers of laminated rosin paper or builders felt (tarpaper) may also be used. All materials should have joints lapped 6". If you have any questions regarding installation or the handling of moisture problems, please contact the distributor/retailer from whom the goods were purchased.

#### Subfloor Systems

**Bonded:** Install a suitable moisture retardant followed by a plywood subfloor with a minimum thickness of 5/8". Allow 1/8" expansion space around all vertical objects and 1/8" between all flooring panels. The panel must be properly attached to the subfloor using a minimum of one fastener per square foot and more if necessary. Use pneumatic or powder actuated fasteners. Do not hand nail the subfloor with concrete nails. Install a moisture retardant barrier with joints lapped 6" and begin installation of flooring using 1/4" fasteners.

**Floating:** Install a suitable moisture retardant followed by a plywood subfloor with a minimum of 3/8". Allow 1/8" expansion space around all vertical objects and 1/8" between all flooring panels. Install a second layer of 3/8" plywood at a right angle to the previous panels, offsetting the joints 2'. Staple together with staples that will not penetrate the first layer of subfloor with a crown width of 3/8" or more. Install a moisture retardant barrier as above and begin installation of flooring.

#### RESILIENT TILE & RESILIENT SHEET VINYL

Make sure the vinyl or tile is well bonded to the subfloor. Do not install over more than one layer, which does not exceed 1/8" in thickness over suitable subfloor.

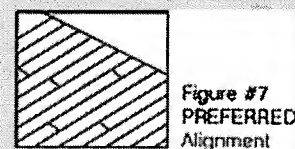
## DOORWAY AND WALL PREPARATION

Undercut door casings. Remove any existing base, shoe mold or doorway thresholds. These items can be replaced after installation. All door casings should be notched out (figure #6) or undercut to avoid difficult scribe cuts.



## GENERAL INSTALLATION TIPS

- Floor should be installed from several cartons at the same time to ensure good color and shade mixture.
- Be attentive to staggering the ends of boards at least 6", when possible, in adjacent rows (figure #7). This will help ensure a more favorable overall appearance of the floor.

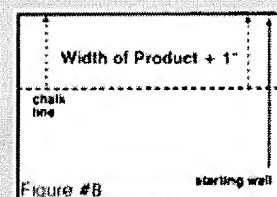


- Large spans in areas of high humidity may require the addition of internal or field expansion. This can be accomplished by using spacers, such as small washers, every 10-20 rows inserted above the tongue and removed after several adjoining rows have been fastened.

## STEP 1: ESTABLISH A STARTING POINT - WALL TO WALL INSTALLATION

- Installation parallel to the longest wall is recommended for best visual effects, however, the floor should be installed perpendicular to the flooring joists unless subfloor has been reinforced to reduce subfloor sagging. Find appropriate subfloor from "Subfloor Type" section in this instruction manual.
- If a moisture retardant material is to be used, such as Laminated Rosin Paper (see NOTE, Subfloor Requirements), install this material before proceeding, lapping joints 6" and stapling if necessary.

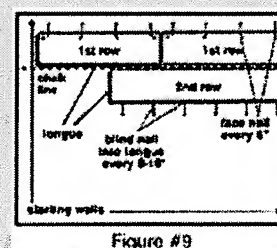
- Measure the width of the product being installed. For random or alternate width products, use the widest plank for the first row.
- Add 1" to allow for ">" expansion and the width of the tongue.
- Using this measurement, in at least two places, measure out equal distance from the starting wall and 12"-18" from the corners (figure #8) and snap a chalk line.



## STEP 2: INSTALLING FIRST ROWS - WALL TO WALL INSTALLATION

NOTE: Always end glue wide width (4" or more) planks with a good construction adhesive.

- Use the longest, straightest boards available for the first two rows. Align tongue of first row on chalk line. The groove should be facing the starting wall. Pre-drill the nail holes = " from back (groove) edge, 1-2" from each end, and at 6" intervals at a 45° angle down through the nailing "pocket" on top of the tongue (figure #9).



- Face-nail the groove side where pre-drilled. When complete, blind-nail at a 45° angle through the tongue of the first row. Fasten using 6 or 8d nails. Countersink nails to ensure flush engagement of groove. Avoid bruising the wood by using a nail set to drive the nails the last <" into the tongue. Continue blind-nailing using this method with following rows until stapler or nailer can be used.
- End-joints of adjacent rows should be staggered a minimum of 6" to ensure a more favorable overall appearance.
- Beginning rows may be blind-nailed where clearance allows using a pneumatic finish nailer with 15 gauge, 1" (minimum) nails.

## **STEP 1 & 2: CENTER TO WALL INSTALLATION**

- Snap a chalk line down the center of the room.
- Install a sacrificial row that extends the entire length of the room on the center line.
- Install three rows of flooring.
- Remove the sacrificial row and insert a slip tongue in the open groove.

## **STEP 3: RACKING THE FLOOR**

- "Dry" lay materials to cover approximately 2/3 of the room. Begin dry laying approximately 6" from the edge of the previously installed rows. Avoid pulling boards too tightly together on the sides, as they must move freely when fastening begins.
- Mark the final board in each row and cut to proper length allowing for expansion. Visually inspect flooring, setting aside boards that need to have natural character flaws cut out. Use these boards for starting and finishing row after objectionable characteristics have been removed.

## **STEP 4: INSTALLING THE FLOOR**

- Fasten a sacrificial board to the floor. Check for surface damage, air pressure setting, tongue damage, etc. before proceeding. Make all adjustments and corrections before installation begins. Once proper adjustments have been made, remove and destroy the board.
- Begin installation with several rows at a time, fastening each board with at least two fasteners, 8-10" apart and 2-3" from the ends (to avoid splitting). Tighten boards as necessary to reduce gaps before fastening.
- End-joints of adjacent rows should be staggered 6" when possible to ensure a more favorable overall appearance.
- The last 1-2 rows will need to be face-nailed where clearance does not permit blind nailing with stapler or brad nailer. Pre-drill and face-nail on the tongue side following the nailing pattern used for the first row.
- Rip final row to fit and face-nail. If the final row is less than 1" in width, it should first be glued to the previous UNINSTALLED row and the two joined units should be face-nailed as one.

## **INSTALLERS - ADVISE YOUR CUSTOMER OF THE FOLLOWING**

### **SEASONS: HEATING AND NON-HEATING**

Recognizing that wood floor dimensions will be slightly affected by varying levels of humidity within your building, care should be taken to control humidity levels within the 35-55% range. To protect your investment and to assure that your floors provide lasting satisfaction, we have provided our recommendations below.

- Heating Season (Dry) - A humidifier is recommended to prevent excessive shrinkage in wood floors due to low humidity levels. Wood stoves and electric heat tend to create very dry conditions.
- Non-Heating Season (Humid, Wet) - Proper humidity levels can be maintained by use of an air conditioner, dehumidifier, or by turning on your heating system periodically during the summer months. Avoid excessive exposure to water from tracking during periods of inclement weather. Do not obstruct in any way the expansion joint around the perimeter of your floor.

### **FLOOR REPAIR**

Minor damage can be repaired with a touch-up kit or filler. Major damage will require board replacement, which can be done by a professional floor installer.

## **ALL INSTALLATIONS**

## STEP 5: COMPLETING THE JOB

- Clean floor with the recommended wood flooring cleaner.
- Re-install any transition pieces that may be needed, such as Reducer Strips, T-moldings, or Thresholds. The products are available pre-finished to blend with your flooring. (See moldings below)
- Re-install all base and/or quarter round moldings. Nail moldings into the wall, not the floor. Inspect the floor, filling all minor gaps with the appropriate blended filler.
- If the floor is to be covered, use a breathable material such as cardboard. Do not cover with plastic.
- Leave warranty and floor care information with the owner. Advise them of the product name and code number of the flooring they purchased.
- To prevent surface damage avoid rolling heavy appliances and furniture on the floor. Use plywood, hardboard or appliance lifts if necessary.

## MOLDINGS

- Reducer Strip: a teardrop shaped molding. Used around fireplaces, doorways, as a room divider, or as a transition between Parquet and adjacent floor coverings that are thinner. Fasten down with adhesive or double-faced tape.
- Threshold: a molding undercut for use against sliding door tracks, fireplaces, carpet, ceramic tile, or existing thresholds to allow for expansion space and to provide a smooth transition in height difference. Fasten to subfloor with adhesive and/or nails through the heel. Predrill nail holes to prevent splitting. Always leave expansion beneath the undercut.
- Stair Nosing: a molding undercut for use as a stair landings trim, elevated floor perimeters, and stair steps. Fasten down firmly with adhesive and nails or screws. Predrill nail holes to prevent splitting.
- Quarter Round: a molding used to cover expansion space next to baseboards, case goods, and stair steps. Predrill and nail to the vertical surface, not into the floor.
- Combination Base and Shoe: a molding used when a base is desired. Used to cover expansion space between the floor and the wall. Predrill and nail into the wall, not the floor.
- T-Molding: a molding used as a transition piece from one flooring to another or to gain expansion spaces. Fasten at the heel in the center of the molding. Leave expansion beneath the undercut on both sides.

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